## **CLAIMS**

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1. A steel wire having a diameter ranging from 0.10mm to 0.40mm obtained by subjecting a high-carbon steel wire material having a carbon content ranging from 0.70% to 0.90% in weight to heat treatment and wire drawing, characterized in;

that tensile strength TS (N/mm²) of the steel wire satisfies following formula,

 $TS \ge 2250-1450logD$ 

(1)

wherein D is the diameter of the steel wire in mm and log means common logarithm,

and that repeated torsion value RT (turns/100D) of the steel wire, which is defined as sum of forward twisting and reverse twisting given until a crack is formed on a steel wire in a test wherein a steel wire is subjected to a repetition of forward twisting equivalent to 3 turns per 100D and reverse twisting to the original state with the axis of the steel wire kept straight, satisfies following formula.

 $\log RT \ge 2-0.001 \{TS-(2250-1450\log D)\}$ 

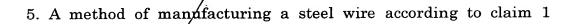
(2)

2. A steel wire according to claim 1, having tensile strength TS (N/mm2) satisfying following formula.

TS≥2750-1450logD

(3)

- 3. A steel wire according to claim 2, having repeated torsion value RT not less than 60% of RT of the same steel wire the surface layer of which has been removed by the amount equivalent to 10% of total volume.
- 4. A steel wire according to claim 1-to-3, having breaking torsion value, which is defined as an amount of twisting to one direction subjected to a steel wire until the steel wire is broken, not less than 20 turns per 100D when the steel wire has been given such a preforming that the steel wire has minimum radius of curvature of 10 to 60 times its diameter and embedded in rubber and taken out from the rubber after vulcanization.



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? / $\xi$  is less than 0.75,

- ② reduction per die is set from 20% to 29% for dies at which  $\epsilon$  is not less than 0.75 and not more than 2.25,
- ③ reduction per die is set from (-5.56  $\varepsilon$  +32.5)% to (-6.22  $\varepsilon$  +43)% for dies at which ε is more than 2.25 except for the final die,
- 4 (4) reduction per die is set from 4% to (-8.3  $\epsilon$  +40.6)% for the final die, and
- $\mathfrak{S}_{\epsilon}$  at the final die is set from 3.0 to 4.3, wherein  $\epsilon$  is drawing strain expressed by a formula  $\epsilon = 2\ln(d_0/d)/$ , (4),  $d_0$  is diameter of the steel wire material in mm before drawing, d is diameter of the steel wire in mm after passing through a die, and ln means natural logarithm.
- 6. A method of manufacturing a steel wire according to claim 5, wherein  $\varepsilon$  at the final die is set from 3.5 to 4.2.
- 7. A method of manufacturing a steel wire according to claim 5.000, wherein a bending operation with tension is applied to the steel wire drawn through the final die.